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ABSTRACT

Descriptions of 10 college programs involving collaborative learning are presented, along with Karen T. Romer's essay, "Collaboration: New Forms of Learning, New Ways of Thinking." The essay identifies various kinds of collaborative learning as well as the benefits of collaborative models. The following programs and schools are described: the senior psychology seminar (Alverno College); student assistance in teaching freshman composition (City University of New York, Queens College); collaborative research partnerships between undergraduates and faculty (University of Delaware); the Student Observer Program that provides feedback to faculty (DePauw University); student paraprofessionals working in programs, including tutorial and academic enrichment programs (Dickinson College); collaboration through structured learning experiences, including students helping students (University of Minnesota at Morris); sharing ethical concerns (Dyson College Society of Fellows at Pace University); Federated Learning Communities and linking of the disciplines (State University of New York Stony Brook); the Experimental College (Tufts University); and student research in anthropology (Washington and Lee University). An annotated bibliography of resources is included. (SW)

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A Joint Enterprise of Discovery and Growth

How to approach knowledge? How to absorb it, connect it, create it anew? Many see collaborative learning—literally, "working with"—as a most effective mode of sharing knowledge and increasing it.

AAC's 1985 report, *Integrity in the College Curriculum: A Report to the Academic Community*, notes the importance of the environment in which learning best occurs: "The quality of the environment can be measured by emphasis on opportunities for active learning and by evidence that students and faculty are engaged in a joint enterprise of discovery and growth."

The curricula featured in this issue of *Forum* represent a few of the contexts in which collaborative learning is being practiced, from individual classrooms to institution-wide programs, from anthropological fieldwork to career counseling.

Collaboration among institutions is furthered by a network of educators and administrators who are eager to share their experiences with others. Two such individuals are Karen Romer, guest editorialist for this issue, and William Whipple, who was primarily responsible for preparing Resources. Both are deeply committed to collaborative learning, in theory and practice.

S.L.-R.

Collaboration: New Forms of Learning, New Ways of Thinking

Karen T. Romer
Associate Dean for Academic Affairs
Brown University

The word *collaboration* has sprung into vogue in higher education. Not only has it been applied to a number of very different educational endeavors, but it also points toward new approaches to education that are far-reaching in their implications. In its familiar forms, collaboration may refer to the alliance between different institutions or types of institutions: the collaboration, for example, between schools and colleges to enable the resources of higher education to stimulate and improve secondary education. Collaboration may involve two individuals, essentially peers, choosing to work together because each brings a different dimension to a task conceived as synthetic: the collaboration between artist and dancer to create an environment of light and movement. Or it may involve several individuals: faculty who collaborate across disciplinary lines within the same institution to create interdisciplinary courses or research groups. The concept is especially familiar in scientific research, where collaborators form research communities that span several institutions. As one scientist has said, "Such communities have on occasion evolved further, to form deeply intimate associations, working so closely over long periods on matters of common concern that the group may ultimately become truly greater and more powerful than the sum of its parts—truly a thinking organism in its own right."[1]

In recent years, the idea of collaboration has been applied to experiments in higher education in which students are drawn into working relationships with peers and with faculty, replacing the traditional didactic modes of the

classroom with a style of pedagogy that engages students actively in a process of learning, that embodies what can best be thought of as a social approach to knowledge. These new learning settings are known by many names: peer tutoring, mentoring, group learning, learning communities. They focus on learning, but achieve that focus as a result of having students teach each other, or as a result of the students' active participation in improving teaching or reshaping a course or curriculum.

What all these collaborative efforts have in common is that they relocate the student in his or her relationship to faculty, to the institution where they are studying, and to their own education. They underscore the importance of mutual exchange in the process of teaching and learning, and devote as much attention to the knower as to the known. By redirecting attention to education as an interactive process, they affirm—in the creation of knowledge and in its validation through transmission—what is essentially a social process.

The process of collaboration attempts to bridge the gulf that has arisen between the teacher's role as purveyor of information and the student's role as passive receptor. Collaborative models, in this respect, build anew the human connection between people engaged together in education and overcome the barriers that emerge when teaching and learning—instructor and student—are divided by rigid separation of roles.

Collaborative models prove adaptable to a wide range of institutional settings including community colleges, public and private institutions, and highly selective universities. Some are described in *CUE: Models of Collaboration in Undergraduate Education*, which was published following a 1984 conference sponsored by Brown University, the State University of New York at Oswego, the Fund for the Improvement of Post Secondary Education, and the Association of American Colleges. The conference revealed that because the collaborative dimension can be applied to a specific skill or aspect of a course, as well as to the structure of a course or aspects of a whole institution, collaboration may be tried experimentally and adopted incrementally.

Collaborative models may have a number of significant effects, then, although not all models will have all the same effects. They may, for example, change the pedagogical atmosphere of the typical classroom, perhaps bringing it to life, diminishing the role of the faculty member as the authority and source of knowledge, and underscoring the idea that learning may be significantly enhanced when the "knowledge" that is conveyed is shaped by the intellectual activities and perspectives of several individuals.

Such models challenge faculty members, sometimes provoking a considerable reorientation of their approach to teaching and contributing to genuine faculty intellectual development. Faculty expected to do research and publish may feel pressed to minimize time spent on teaching and interacting with students to any extent outside of the classroom. Most faculty have not, in the course of their professional training, studied teaching or examined what might constitute learning, let alone made any systematic attempt to understand the intellectual and social development of their students in the college years. Genuine collaborative learning undermines the traditional idea of teacher as fount of knowledge and student as vessel. Cast in the role of learners themselves, faculty learn more about the students they are teaching. And not least of all, these collaborative models affect individual students profoundly, engaging them actively and enabling them to place their own learning in the context of a discovery process that is experienced collectively, or, as Joseph Katz has said, makes them aware of "the epistemology of their own learning."[2]

Collaborative models bring to education a kind of parity between student and faculty: they see themselves as contributing differing perspectives, being allied exactly because they will not see things from the same vantage point. If the collaborative process merely transforms the student into mini-teacher, clone, or disciple of the authority, the goals of collaborative learning have not been achieved by student or teacher. Each must recognize that the perspectives and experience of the other will contribute to the process of teaching and learning by which knowledge is affirmed, refashioned, or made anew.

It is the importance of bringing together these two frames of reference that gives collaboration such potential significance to higher education today. The implications of collaborative models of learning extend beyond pedagogy. They have the potential to affect the structure of education and provide not only new forms of learning but also new ways of thinking. The collaborative process strengthens and develops modes of thinking that have been at best minimally present in our educational system, where the classic classroom model presents a single authority, and the intellectual process needed to approach that authority is the vertical, logical, and linear model of thinking. Typically there are right as well as wrong turnings that one may make in the course of one's journey toward that authority, and those who work with or under that authority are often apprentices in training to that school of thought.

The collaborative model, in contrast, strengthens the capacity for what has been referred to as "lateral thinking." Lateral thinking deals with the distinctive perspectives of differing frames of reference. It attempts not to find solutions and resolutions, not to make judgments, but to identify alternative ways of looking at the same information. The processes of comparison, selection, and synthesis are subsequent steps by which one may

discover the differing frames of reference either to be congruent and mutually reinforcing or in conflict with each other. At this point, the discovery process which is education will not always prove tidy; it may reveal considerable disorder. However, the very traits that allow collaborative ways of thinking to emerge will foster the attitudes to deal with that disorder: a willingness to listen to different voices and know each brings an important perspective; tolerance based on respect and attention; willingness to engage in dialogue and discussion rather than speech and rhetoric; an ability to interpret. And because lateral thinking is frequently identified as one of the characteristics of creativity, an educational model that develops such thinking may produce a new generation of inventive minds.

It is possible that we may find, as we direct pedagogy away from the primarily vertical to a combination of vertical and lateral modes of thinking, that we have opened anew the knowledge we have developed from other fields. Perhaps our current model of social and intellectual development in the college years will be revealed as itself imbedded in a framework shaped in large measure by the particular structures of our educational environments. The capacity to move out of conventional frameworks is also frequently identified as one of the characteristics of creativity.

The collaborative process, when applied to the curriculum, may also reveal new approaches to the challenges that face American higher education in the next decades. New populations of students need to become collaborators in shaping programs and courses that address their needs; collaborators who can bring together the perspectives of non-Western cultures with those of the West will be essential to creating an education that is more globally enlightened; and collaborators who understand the practical world of our social institutions beyond the walls of learning need to engage with those within it. Only then can our colleges and universities continue to sustain, cherish, and transmit the inherited wisdom of our culture as it has been received as well as respond to the new needs for education. Education has never flourished behind walls and structures that lock some in and others out. Training in modes of thinking that can release us from entrenched patterns of interpretation and rigid frames of references will be essential to our continued responsiveness to our changing world. Collaborative models will enable us to cross barriers and gulfs in a shared process as we lead each other a little further out from the darkness.

[1]Caryl P. Haskins, "Changing Environments of Science," *Daedalus* (Summer 1965), 698.

[2]Joseph Katz, in consultation with the author, 1984.

Alverno College

Senior Psychology Seminar Fosters Collegiality

A unique senior seminar for psychology majors at Alverno College integrates knowledge with experience to foster collaboration and colleagueship among students and faculty.

"Senior Seminar: Integrated Assessment" is a one-semester course team-taught by the four members of Alverno's Psychology Department faculty; required for psychology majors, it is offered in the fall semester. The course was redesigned about four years ago when faculty members felt dissatisfied with its predecessor. Staff members recognized, explains Jane S. Halonen, psychology department coordinator, "we were asking students to integrate what they had learned in prior courses without ever having seen explicit integration being practiced; we were asking them to communicate to a professional-level audience in psychology without teaching them to do so."

Halonen describes Alverno as a "non-graded, competence-oriented" women's college of about 1400 students. Its entire curriculum is structured to help students develop competencies characteristic of liberally educated people. With that in mind, psychology faculty drew upon their own training in developmental, clinical, and experimental psychology and "adapted collaboration among ourselves," Halonen says, "as a way to foster a collaborative spirit with the students."

The results have been twofold. Students' final projects—semester-long efforts—have now become truly the "capstone achievement" they were originally intended to be. And faculty members have followed their revamping of the senior seminar with an appraisal and reworking of the entire psychology curriculum because they realized students needed more challenging exposure to theory.

Three-part Course

All four Psychology Department faculty are "present and eager"—Halonen's words—at all sessions of the class, which meets for two hours each week. During the semester, seminar participants work with the four faculty, as well as with each other, in developing and researching a topic that they will present as a paper. The paper itself demonstrates their thinking and writing skills, and students are required to annotate it in conformity with professional standards.

Halonen describes the course work that students pursue while working on their research papers as divided into three parts: "incubation," "integration," and "expla-

nation." In each, collaboration among students and faculty is an essential ingredient.

Initial class sessions reflect a collaborative effort on the part of the faculty who organize discussions of topics that will enable students to reflect on previous courses and refine their research skills. Instructors vary the texts each time they offer the seminar; this year the reading list includes articles on reasoning and argument and psychology and public policy.

During the seminar, students engage in a number of activities designed to help them reflect on the knowledge they have acquired in preceding psychology classes. One stimulus faculty members have used is an obviously dated commercial that students view and describe; they then consider how their inferences about the commercial reflect what they have learned as psychology students. In another meeting, faculty and students discuss what Halonen refers to as the "sociology" of psychology: "What structures of power exist within the discipline and how they affect our judgments about acceptable sources of data."

What Halonen calls "perhaps our favorite session" comes in the fourth week of the seminar. Students choose a famous psychologist and research his or her theories. When the class meets, students role-play their psychologist in a discussion of important issues in psychology. The exercise is stimulating, Halonen says, and "frees students from feeling their own ideas are being evaluated."

Part of each class meeting is set aside for students to report on their research progress, and Halonen sees a truly collaborative relationship in evidence: "Students are very supportive of one another. There is considerable sharing of material, and students work very hard to help another break through."

In what Halonen describes as the "integrative" portion of the course, "students are learning to move from the concrete to the abstract." To help them, faculty members invite guest speakers and lead discussions on topics that reflect their own academic interests. "Students see different perspectives 'in action,' so to speak," explains Halonen. "They see how to integrate the knowledge they have acquired and come up with something much richer."

In a collaborative use of their institution, psychology faculty members invite a staff member from Alverno's career lab to the seminar to help students identify what they can do after they graduate. Students spend one class session "translating their educational activities into a resume for a 'generic' employer," says Halonen, "as they focus on explaining what they've done and consider how to tailor their experience for different audiences."

The seminar culminates in the students' hour-long presentations on their research. Projects underway this semester include a study of compulsive buying by a student in psychology and management, an examination of the survivor syndrome—are there predictors for whether people will cope or collapse in the face of tragedy—by a student with a double major in psychology and art therapy, and an analysis of the influence of the media on recovering alcoholics.

Each student meets with a professor to discuss the paper. One of the greatest difficulties is that students want to "fix" the problem they have identified. To enable students "to explain rather than solve, faculty members emphasize the theoretical," Halonen says, "and over the four years that the course has been structured this way, we've seen students go from describing pieces of a puzzle to building theory."

The presentations are videotaped, and students are asked "to assess their own communication skills by reviewing the tape and then discussing the strengths and weaknesses with a faculty member." Students can also copy the videotape to use when applying to graduate schools or looking for jobs.

The course's reputation has grown over the years, Halonen notes, and students perceive it as having "the 'power' to get students active. It is not unusual for sophomores to approach faculty members to discuss their ideas about their projects." —*S.L.-R.*

For more information, contact Jane S. Halonen; Psychology Department Coordinator; Alverno College; 3401 South 39th Street; Milwaukee, WI 53215-4020 (414/647-3999).

CUNY—Queens College

Students Aid in Teaching Composition

A successful variation on the relatively common use of peer tutors in writing laboratories is in its fourteenth year at Queens College, where instructors and undergraduate students team-teach freshman composition courses.

Associate Professor of English George Held, who was one of two originators of the program and served as its first director, says that the program, which was begun "to help composition teachers meet the challenge presented by the first open-admissions students at CUNY," continues today as a way of giving students more individualized attention. And the teaching assistants, Held notes, "gain valuable experience in public speaking, leading a group, assessing writing—which often leads to improving their own writing—and, in some cases, preparing for a teaching career."

This semester, eighteen sections of composition are being team-taught: seven are remedial-level classes, seven are regular composition classes, and four are ad-

vanced-level (second semester) classes. Queens requires its students to take a minimum of two semesters of composition. Almost all students are commuters, and they represent the rich mix of New York's ethnic communities. More and more sections of English as a Second Language are being offered each year, and those who do take ESL must take two additional semesters of composition.

Student teachers for the composition courses are selected on the basis of interviews and samples of their own writing. Often, says Held, an instructor will identify a qualified student—not necessarily an English major—and invite him or her to become a team member. Students are not paid, but do get four hours of credit for assuming the teaching responsibilities, which include attending a seminar each week with other student teachers. In this seminar, conducted by the program's director (a position that rotates among the staff), student teachers discuss their teaching experiences and, according to Held, "share what has worked and confess their failures." Seminars also give the student teachers the opportunity to teach a sample session on, for example, punctuation or paragraphing and be critiqued by their peers.

'They need to hear two voices'

Within the classroom, student teachers fill many roles. They share with their teammate the responsibility for planning and teaching lessons, leading classroom discussions, meeting with students, and grading papers; they may even advise the faculty member in choosing a text before the semester begins.

As a result of having a student working side-by-side with a faculty member, Held explains, composition students "need to look in two places and hear two voices." The traditional "authoritarian" structure of the classroom, where students look only to the instructor for learning and direction, is replaced by a classroom where the message is clear: students must strive to communicate well with many, and not just one. Students are more likely to participate in class discussion and more likely to seek assistance, Held observes, when someone they can identify as a peer shares the "authority."

The collaborative team-teaching method is also of great benefit to composition students when they write. Every paper is read and commented upon by both team members, and again, the effect is that students recognize more clearly that their objective should not be to write something that pleases one person but to write something that is generally clear and concise. As an example, Held recounts an incident when "a faculty member unknowingly contradicted in a comment on a paper something that his teammate had proposed in a conference. In the ensuing discussion, the student realized that if both readers thought her paper should be changed in divergent ways, perhaps she did not have a very clear grasp of what she was trying to say or did not say it precisely."

Held says that faculty willingness to participate in the program "goes in cycles," and that 18 or so is the optimum number of teams. "Having a student teacher helps you share some of what's going on in the classroom instead of internalizing everything. The student teachers are often tougher than the faculty. And it's good training for them. We now have a couple of adjunct faculty members who began their careers as student teachers in the composition classes.

"I'm conscious that this emphasis on peer teaching in composition classes sounds a bit anachronistic now. We keep doing it, nevertheless, because it gets results."

—*S.L.-R.*

For more information, contact George Held; Associate Professor of English; Queens College of the City University of New York; Flushing, NY 11367 (212/520-7328).

University of Delaware

The Backbone of Undergraduate Research

Typically the domain of the graduate student, collaborative research partnerships with faculty members were extended to all interested University of Delaware undergraduates beginning in 1980 through the Undergraduate Research Program. Modelled after M.I.T.'s Undergraduate Research Opportunities Program, according to a project description, UD's program took shape as a senior thesis preparatory opportunity under the auspices of the Honors Program. It subsequently evolved into an effort "to increase the quality and quantity of research conducted by honors-calibre undergraduates," according to Joan Bennett, program coordinator.

In any one year, UR engages between 300 and 400 undergraduates—out of an approximate 13,000 enrollment—in research projects based in a variety of disciplines ranging from art history and chemical engineering to economics and Latin American studies.

The UR office serves as a central clearinghouse for collaborative research projects for both students and faculty. Each academic year, the UR office publishes *Undergraduate Research Opportunities*, a comprehensive, university-wide directory listing current research projects of faculty members soliciting undergraduate research assistance.

Additionally, Bennett views her office as a "matchmaker" of faculty needs with student interests, as well as a counseling service for students with a casual interest in taking advantage of the program, so that student apprenticeships may benefit all parties involved. An international relations professor, for example, sought Bennett's assistance in finding a Spanish-speaking student in inter-

national relations or political science who would be interested in working on a book about the U.S.'s involvement in Nicaragua.

Unlike students in the university's Honors Program, says Bennett, students accepted into the research program generally do not need to maintain a 3.0 grade point average; they "must simply express an interest" in becoming involved in a particular research project. About a third of the students specially admitted into the program during their freshman year are also enrolled in the honors program. She adds that while "overall the students who do work in the program have very high grade point averages—far above a 3.0—there are students below the 3.0 who have made wonderful research contributions."

Depending upon their needs, undergraduate research assistants receive either academic credit or some form of payment for their services. Most students opt for academic credit—between one and six credits a semester, in accordance with the amount of work contracted. This may take the form of a letter grade or a pass/fail mark. Other students, who have reached their limit in electives, may choose a salary/stipend arrangement provided through funding from a faculty member's research grant or college work-study resources if the student has qualified for financial aid. As a final alternative, those who are unsure about the amount of time they can commit to a research project can volunteer their services.

Introducing a Multidisciplinary View of Research

As an orientation to the research experience, freshmen and sophomores can enroll in an optional three-credit colloquium, The Research Commitment: Issues and Skills, through the Honors Program. Offered during the spring semester, the course serves as a cross-disciplinary introduction "to the varied nature of academic research," according to a program catalog, "and to related theoretical methods and practical skills."

A core of five faculty members—one each from the humanities, mathematics, physical science, natural sciences, and social sciences—present individual lectures on the essence of being a researcher in his or her area. "We simply plunge the students imaginatively and practically into our current research," during the first half of the course, says Bennett, who also coordinates this course.

During the second half, students are engaged in a variety of "practical learning" activities in and out of the classroom. Students request guest lecturers from other disciplines within the university to discuss current research in the fields not covered by the core faculty. A variety of technical exercises rounding out this half of the course includes an "introduction to the library above and beyond the college term paper," says Bennett, through a historical investigation and work with the citation index. Additionally, students gain immediate, though limited, hands-on experience with computers, laboratory techniques, mathematical modelling, and questionnaire design and/or a social science exercise.

Concurrently, students work individually with one of the original five faculty members on a related term project. Students who choose to work with Bennett usually complete some type of literary project. Beginning with a long list of modern short fiction, says Bennett, students are "invited to read around in it." Then, after attending a series of conferences and making investigative trips to the library, students must produce a mock paper proposal for a conference. According to Bennett, this portion of the course imparts the knowledge of how "you discover a [research] question in the first place, how you immerse yourself in the community of scholars, and how you keep redefining your question until you finally have a good proposal."

'I have absolutely no doubt that students benefit tremendously when we develop our faculty.'

Within the liberal arts and sciences, according to Bennett, there are senior theses now underway that are directly related to work begun in the UR program. One student is currently collaborating with a faculty member from the English Department on a cross-disciplinary project about Victorian attitudes toward suicide. Another student, a business major who had been fascinated by a Shakespeare course he had taken, joined the UR program to work with that professor on researching 1960s productions and reviews of productions of *Hamlet*. To many, this might seem like a boring task, Bennett remarked, but that particular student considered it an "interesting and valuable" experience.

In addition to selecting from the individual research projects throughout the university, students may also choose to collaborate with professors from 26 interdisciplinary research centers and programs such as the Center for Science and Culture, the Center for the Study of Values, the Criminal Justice Program, and Women's Studies.

Getting Around University Bureaucracy

Since the program's inception five years ago, Bennett has had to negotiate quite a few "minor adjustments" in the university bureaucracy. These include:

- summer on-campus housing for a limited number of student researchers;
- inclusion of "undergraduate research assistant" as a legitimate college work-study job;
- negotiating with individual department chairs to

provide matching funds to the college work-study grant for particular collaborative research projects;
- devising a form for adding research credits after the registration deadline; and
- creating the Research Tuitionship in which individual departments agree to pay the excess tuition charge for students adding "research assistance credit hours onto an already full (15-hour) load."

Bennett owes the success of these negotiations to the fact that "there is one central person coordinating the adjustment, instead of individual faculty members."

As a means of disseminating some of the particularly interesting research that has been conducted by students and faculty members, the UR office sponsors an annual Undergraduate Research Symposium in which students present their accomplishments to the university faculty. Bennett admits that this venture is difficult to coordinate because it is "so vastly interdisciplinary," and necessitates an audience with diverse interests.

Through their work in the UR program, approximately 150 students have had their research efforts published in professional conference proceedings and academic journals. "Our primary goal, however, is not to turn undergraduates into early professionals, but rather to affect the quality of the undergraduate experience," says Bennett.

"I truly view this program as a faculty development program," Bennett adds. "The reason that I can say that and still be here supposedly working for students is that I have absolutely no doubt that students benefit tremendously when we develop our faculty." —*L.M.N.*

For more information, contact Joan S. Bennett; UHP Coordinator of Undergraduate Research; University of Delaware; 186 South College Ave.; Newark, DE 19716 (302/451-8995).

DePauw University
Students Shape Strategies

A Student Observer Program at DePauw University is providing faculty members with effective and meaningful feedback about their teaching and giving students insights into the profession of teaching. The program, organized by Professor Anthony Catanese, places students in faculty members' classrooms for a semester to observe and critique teaching strategies.

Believing that formative and immediate feedback, provided on a regular basis over a long period of time, would prove to be more beneficial to faculty than typical student evaluations administered upon completion of a course, Catanese implemented his ideas by adapting existing programs at other institutions. He tried it first himself, and then invited all 2,200 students and 150 faculty members at DePauw to participate.

The program has attracted faculty members from a wide range of major academic areas and discipline levels within DePauw's liberal arts curriculum. An important aspect of the program's arrangement is that participating faculty members select the students they wish to have as observers. Catanese explains that in most cases faculty members prefer to work with students who have had experience in their particular discipline. Some instructors, however, choose students from outside their fields. Instructors' reasons for selecting a particular student vary according to the kind of feedback the instructor is seeking: feedback on the pace of the course, the difficulty of the material, the presentation.

The variety of disciplines that participating faculty represent has led to a diverse cross-section of students who volunteer their assistance: a "free-market approach," Catanese calls it. In addition to the students who agree to participate upon request by an instructor, others are motivated by an interest in the profession of teaching or, Catanese explains, simply because the idea of having input to a professor's teaching strategies fascinates them.

In all cases, students and instructors are expected to work together in a professional and confidential manner. Each "team"—consisting of a student and faculty member—works out a schedule of observations and conferences for the coming semester. In some cases, for example, students observe a class and write feedback on a daily basis; once each week student and instructor meet to discuss the feedback. After discussing and agreeing to their respective roles and responsibilities, student and instructor sign a contract.

Semester of Preparation

The Student Observer Program, as designed by Catanese, actually takes place during the spring semester of the academic year. In the semester prior to that, participants are oriented to their task through a series of regularly scheduled training sessions. Students learn various methods of note-taking and, through role-playing and question-and-answer sessions, learn how to supply "nonjudgmental and constructive feedback," Catanese says.

Catanese also convenes participating faculty members in discussion sessions to talk about the student/faculty contracts. Catanese emphasizes, however, that he tries to "decentralize" the program as much as possible in the belief that its success is directly related to the ability of each participant—faculty member and student—to work individually within the program's structure.

Catanese administered a survey to last year's participants and found unanimity of positive reactions. He attributes the program's success to three major factors:
- Feedback is developmental, rather than evaluative;
- Feedback is immediate and consistent, coming from one student throughout the semester;

- The student-faculty relationship is confidential and professional.

Citing his own experience, Catanese explained that the feedback he received from his student observer helped him adjust his lectures from day to day to suit better his students' needs and interests. Teaching the same course this year, he finds himself referring to the earlier feedback. "What is most helpful is that the instructor is able to make immediate adjustments so that the students taking the course now, as well as those who will take it in the future, benefit." —*A.T.*

For more information, contact Anthony V. Catanese; Faculty Development Coordinator; DePauw University; Greencastle, IN 46135-0037 (317/658-4874).

Dickinson College

Collaborative Learning Goes Beyond Classroom

Students at Dickinson College in Carlisle, Pennsylvania, help one another learn both inside and outside the classroom by serving as paraprofessionals in a variety of programs sponsored by the college's Counseling and Placement Center.

Davis C. Tracy, a counseling psychologist and director of the center, applies developmental theories in training student interns to provide helping services in four areas: career assistance, tutoring and academic enrichment, sexuality education, and alcohol abuse prevention. He credits the work of William Perry as a source of the program's overall design and studies by Stanford University psychologist Albert Bandura as sources for the selection and training aspects of the program.

Career counseling plays an important role at Dickinson, a school of approximately 1,900 students located in a community of 20,000 in eastern Pennsylvania. The college has a strong liberal arts tradition and emphasizes international education, sending about 100 students overseas each year for study programs. A strong career counseling program has been in existence at the school for over 10 years, and in the last few years, Tracy says, the Counseling and Placement Center "has paid accelerated attention to the relationship of college work to occupations."

Each year, 10 Dickinson students are trained by Tracy and his staff as counselors in the Career Assistant Program. Student counselors, who keep regular office hours in the Counseling and Placement Center, get 60 hours of intensive training at the end of the summer immediately prior to beginning work. During the year that they serve as counselors, they also participate in 2½ hours of individual supervision and group training each week, plus a full day of "mid-year training" at the beginning of the second semester.

What kinds of assistance do students provide their peers? They help other students prepare resumes, research employment opportunities, and rehearse for job interviews by videotaping and critiquing role plays. This kind of "nuts-and-bolts" work, Tracy points out, supplements the services provided by a full-time career counselor on the center's staff and counseling provided by three other center staff members.

The advantages of using students to provide these kinds of assistance accrue to both the career counselors and the career seekers. Student career counselors are able to reach and assist a large number of other students, Tracy notes, because they are peers and because they are accessible. And the counselors, many of whom are interested in pursuing careers in helping professions, get practical, supervised experience that gives them an accurate sense of the satisfactions and frustrations ahead.

That exposure, in fact, is one of the reasons students can only serve as counselors for one year. The work is very demanding on a student's time; each counselor spends between 10 and 15 hours per week working with clients and being supervised. But Tracy is also committed to preventing "burn-out": "Beginning helping professionals get exhausted because they assume the client's problem is their problem. We have to help our counselors learn to set limits on how much help they can give people."

Each class of counselors functions, in the course of an academic year, as an extremely cohesive group. Tracy says this contributes significantly to the effectiveness of the program, and it is also compatible with Dickinson's overall emphasis on group activities.

Tutorial and Academic Enrichment Programs

Dickinson's tutorial program serves approximately 130 students each semester. Students can be tutored in any subject they wish, and depending on the number expressing interest, meet either in small groups or individually with tutors. Tutors, recommended by faculty members in their academic areas, are required to attend workshops on tutoring techniques that are sponsored by the Counseling and Placement Center.

Enhancing the tutoring program is the Academic Enrichment Program. Under the auspices of the Counseling and Placement Center, each Dickinson freshman is given a "learning style test" during orientation; later in their first semester, they take a "learning strategies test." The results of both tests are given to the students with suggestions for making the most effective use of their personal learning style in the courses they are taking.

Learning styles can be adapted to all elements of a liberal arts curriculum, Tracy explains. "The results of the tests tell us what kinds of learners we have and what

'The overall goal of our enrichment program is to provide students with the information they need to become active participants in the learning process.'

kinds of study habits they have. If a student is a 'visual' learner, for example, we can help that student understand how to cast—say, historical—material into something he or she can absorb visually: an outline or a chart, perhaps."

The Academic Enrichment Program also offers workshops on such diverse topics as study skills, time management, test anxiety, memory improvement, and reading skills. All workshops are conducted by staff members from the Counseling and Placement Center plus upperclass students. "The overall goal of our enrichment program," notes Tracy, "is to provide students with the information they need to become active participants in the learning process. Our emphasis is not just on what you know, but how you can apply what you know."

Students Lead Workshops

A third collaborative project the Counseling and Placement Center has undertaken is the Sexuality Resource Group. Each autumn, about 20 students attend a 12-session training program on topics, according to Tracy, that range from anatomy and contraception to sexual myths and values.

Members of that core group, in turn, conduct workshops—at residence halls, fraternities, and sororities—throughout the year, and they sponsor a Sexuality Education Week each fall. This semester, the group also sponsored an orientation program on acquaintance rape: all freshmen viewed a videotape produced by students at Swarthmore College in conjunction with a presentation by a Counseling and Placement staff member.

Dickinson students also are active in the local BACCHUS chapter, part of a national collaborative effort involving students who educate each other to "Boost Alcohol Consciousness Concerning the Health of University Students." Supervised by a member of the Counseling and Placement Center staff, student members of BACCHUS receive five hours of training to conduct small group discussions that focus on responsible drinking and the dangers of irresponsible use of alcohol.

At Dickinson, the BACCHUS chapter sponsors an annual Alcohol Awareness Week and, like many other BACCHUS chapters, offers a travelling, nonprofit, non-alcoholic beverage bar that is available to organizations planning parties. It also sponsors a no-alcohol nightclub that is part of Dickinson's snack bar system. Tracy reports that student participation in the group has grown from 15 to 75 in just three years, and that BACCHUS's services are very much in demand.

Permeating all Counseling and Placement Center activities, Tracy emphasizes, is the conviction that having students help one another can be a valuable learning experience for all involved in such collaboration. —*S.L.-R.*

For more information, contact Davis C. Tracy; Director, Counseling and Placement Center; Dickinson College; Carlisle, PA 17013 (717/243-5121).

University of Minnesota at Morris

Collaboration on many levels

Comprised of 1,700 undergraduates and 100 faculty members, the Morris campus of the University of Minnesota (UMM) provides a close-knit environment conducive to interaction, says Coordinator of Academic Assistance and Honors Programs William E. Campbell. Although UMM is a public institution, he notes, its size and its focus on the liberal arts have fostered "spontaneous examples of collaborative learning in the classroom, laboratory, and faculty office that one more often associates with private colleges."

While this networking often occurs informally, UMM also specifically encourages collaboration through a variety of structured learning experiences. Ranging from peer tutoring and counseling services to freshmen seminars and joint research projects with faculty, these experiences allow students to become "active learners"—a welcome change from the passive role typically forced upon undergraduates in larger, lecture-based classes, says Campbell.

"I believe in multiple paths to learning," he says, maintaining that different instructional media are necessary to fulfill different needs. To this end, UMM established the Academic Assistance Center in 1984, created, Campbell says, "to offer as wide a variety of services possible to as wide an audience as we could gather."

Students Helping Students

With the opening of the Academic Assistance Center, UMM's Peer Tutoring Program—for years perceived as a service provided to minority students only—became an established campus-wide resource, and last year reached more than 250 students.

Peer tutors are hired on the basis of their grade-point averages and, more importantly, according to Campbell,

positive certification from a professor in whose discipline they wish to specialize. Says Campbell: "We avoid hiring students for whom A's come too easily because they usually have little grasp of how difficult it is for some people to learn."

Peer tutors make a quarter-long commitment to the program, agreeing to spend at least two hours a week with their "pupils." Before they start tutoring, students receive a brief orientation that enumerates the principles upon which the program is based. Foremost among these is the maxim that the tutee's needs come first. "If a student is only trying to become familiar enough with a subject to pass a course, the tutor must respect that goal and not try to force that student to earn an A," says Campbell. He emphasizes the peer tutor's role as a learning facilitator (as opposed to instructor) and exhorts tutors to "never even pick up a pencil" during their sessions. This technique forces the tutees to do their own work and, in effect, teach themselves, asserts Campbell.

'We ask tutors to encourage cooperative learning, because students can help each other overcome common weaknesses.'

With the peer tutoring program's recognized availability to all students, the number of subjects in which they can receive assistance has increased. "The most requests for tutors come from students needing help in math, chemistry, and physics," says Campbell, but he notes that the program strives to provide tutors for any and all subjects. While one-on-one meetings are available for students in more "exotic" courses (such as German or anthropology), group sessions of three tutees or more are recommended. "We ask tutors to encourage cooperative learning," says Campbell, "because students can help each other overcome common weaknesses." Valued as a nonthreatening mode of instruction, peer tutoring has become a part of other UMM programs, such as the Math Room, English as a Second Language, and Supplementary Instruction (for whole classes needing assistance).

UMM's Counseling Center also makes use of students' interactive skills through its peer counseling program, Third Ear. Overseen by a paid student coordinator, 25 to 30 student volunteers provide counseling on issues ranging from vocational opportunities to rape awareness. Campbell notes that Third Ear staff members receive extensive training from professional counselors, who teach them listening and empathic techniques. "This year," he says, "peer counselors are focusing their attention on eating disorders, a major problem on many campuses."

Sharing Knowledge

Collaborative learning is a part of enrichment as well as corrective programs, and students are exposed to its benefits early in their academic careers. Freshmen are encouraged to participate in interdisciplinary seminars called "Connections," which bring students together in small discussion groups for one or two quarters to examine such topics as the Baha'i faith, the mass media, and genetic alteration. These seminars make students realize the importance of interaction, says Campbell, "as they learn that intellectual activity does not occur in a vacuum."

Enjoying the same kind of personal contact with their teachers, students have the chance to do collaborative research with their professors, an opportunity, says Campbell, which many universities reserve for graduate students. A psychology professor, for example, has coauthored approximately 37 papers with his undergraduate students for a variety of journals, including *Physiology and Behavior* and *Teaching Psychology*.

History majors taking a required research methods course use primary sources to explore topics in local history, and their papers are catalogued and stored for future reference in the West Central Minnesota Historical Research Center, located on campus. Under the guidance of the center's director, a UMM history department faculty member, students learn to use historians' tools: studying memoirs and correspondence, interviewing local residents for first-hand accounts of events, and using the data base to access state and federal census statistics.

With continued emphasis on collaborative learning experiences, UMM is now developing an accelerated Scholars Program, with courses scheduled for the fall of 1986. These courses will be complemented by extracurricular activities and completed by a final research project.

—*N.M.L.*

For more information, contact William E. Campbell; Coordinator of Academic Assistance and Honors Programs; University of Minnesota at Morris; Morris, MN 56267 (612/589-2211).

Pace University

Sharing Ethical Concerns at Dyson College

Currently in its fifth year, the Dyson College Society of Fellows at Pace University unites arts and sciences students of high aptitude with prominent faculty, alumni, and friends of the college. As peers, they examine the ethical and intellectual applications of new technologies and developments facing society.

Although Pace University originated at the turn of the century as a business school, the Dyson College of Arts and Sciences did not evolve into its present form as an independent liberal arts college until the late 60s, according to Dyson Assistant Dean Eric M. Rustad. Approximately 2,000 of Pace's 14,000 students are enrolled in the Dyson undergraduate program.

"More than an 'honors' program," states Rustad, the Society of Fellows came into being in 1980 under the direction of Joseph E. Houle, Dean of Dyson College. An executive committee—composed of 12 faculty members, students, and alumni fellows—serves as the society's governing body, and is divided into three subcommittees: membership, seminar planning, and annual meeting.

In an effort to foster undergraduate scholarship, students participate in a variety of activities, including seminars directed by well-known scholars and annual meetings at which they present scholarly projects, before becoming full fellows in the society.

Membership in the society is limited to Dyson College students. In an effort "to foster undergraduate scholarship," says Rustad, students participate in a variety of activities, including seminars directed by well-known scholars and annual meetings at which they present scholarly projects, before becoming full fellows in the society. Within Dyson College, virtually all majors are represented in the society. Interested students join the society as Associate Fellows and are thus expected to actively participate in all of its functions.

Induction into the Society of Fellows usually occurs in the fall semester of the students' graduating year. Approximately 25-30 students are inducted each year upon demonstration of the following: general liberal education strengths, excellence in written and oral communication, adequate quantitative skills or research in social and natural sciences, participation in collegiate activities at Pace, some in-depth work in a particular liberal arts field, and a guided research project. According to Rustad, at any one point, the society comprises approximately 40-50 student fellows. Alumni fellows number 125, while about 50 fellows are either faculty members or friends of Dyson College.

Debating the Issues While Breaking Bread

Affiliated with the Center for Applied Ethics at Pace, the Society of Fellows sponsors two weekend retreats off-campus, one in the fall and spring. Since half of the Executive Committee is students, states Rustad, "the students are very heavily involved in the management" of the seminars. Seminar attendants usually prepare in advance by reading selected works appropriate to the designated topic. Often, the "discussion will break up into various groups at points along the way, and even continue over dinner," says Rustad.

The first seminar, held in autumn of 1980, devoted its session to Applied Ethics, with Burton Leiser (currently a philosophy professor at Pace) as keynote speaker. Subsequent seminars addressed such topics as Paternalism versus Individual Autonomy; Communication and Allocating Scarce Resources: A Challenge for Democracy; and the Government and the Family, to name a few. This fall's seminar features Norman Bowie, professor of philosophy and director of the Center for the Study of Values at the University of Delaware, leading a discussion on the Right of Privacy.

Each spring, the society sponsors an annual meeting at which 12-15 student members present completed scholarly projects. Past projects include a volume of original poetry, a psychology research effort on "The Effects of Physical Attractiveness on Attitudes Toward Women in Business," and a chemistry report on "The Role of Tryttothan Residue in the Catalytic Action of Thrombin." Attendance at the annual meeting reaches about 75-100 individuals, and includes a keynote speaker, other fellows, associate fellows, alumni, faculty fellows, officers of the university, and other interested faculty members.

Commenting on the benefits of such a student-faculty collaboration, Rustad feels that participants in the Dyson College Society of Fellows "receive a tremendous amount of feedback and stimulation from people who are really interested in scholarly issues and questions." For students, membership in the Society of Fellows provides them with insurance against getting lost within the larger institution of Pace. —*L.M.N.*

For more information, contact Joseph E. Houle; Dean, Dyson College; Pace University; Pace Plaza; New York, NY 10038 (212/488-1517).

State University of New York at Stony Brook

The Original Federated Learning Community

When the results of a 1972 institutional self-study revealed a growing sense of intellectual isolation among students at the State University of New York's

Stony Brook campus, faculty and administrators were faced with the challenge of creating an undergraduate program to revive the spirit of the academic community that would be in keeping with the specialized nature of a modern university.

"Ours is a research-intensive, strongly departmental institution with 11,000 undergraduates, and we realize that specialization is a fact of life in today's society," says James B. McKenna, director of Stony Brook's answer to the problems of fragmentation—Federated Learning Communities (FLC). FLC is a conservative approach to curricular reform, maintains McKenna, because it uses what is already in place: the knowledge of disciplinary experts. "The basic components of each FLC," he says, "are regular departmental courses connected—federated—by a unifying theme and integrated by a core course and program seminar."

Since the program's inception in 1977, approximately 100 of Stony Brook's 800 faculty have participated in at least one FLC, either as instructors or Master Learners, professors who relinquish their regular duties during the two instructional semesters of the program to take FLC courses with students and lead the program seminars. While students participating in FLC courses are enrolled for two semesters (an optional, independent study semester is also available), faculty participation requires a year-long commitment. Professors meet for one semester prior to the two instructional semesters to organize course content and discuss teaching techniques; they also are available during the independent research semester to help students plan and develop projects. Says McKenna: "FLC is an effective vehicle for faculty development; it is one of the few situations in which faculty members work together on a common intellectual issue."

Interaction is the key to the FLC program, states McKenna, noting that while FLC students do the same amount of work as regular students, they are exposed to a learning environment in which they must work together and find connections between their courses. "Typically," says McKenna, "undergraduates study alone, do assignments alone, write papers alone, and may never say a word in the classroom. This is totally unlike every kind of experience they will encounter during their professional careers." Thus, McKenna maintains, FLC is solid preparation for "real world" situations, where working with others will be a necessity.

Federated Courses Are FLC Foundation

Designed to produce enduring curricular reform, FLC's nine years at Stony Brook attest to its success, says McKenna, who attributes the program's longevity to its foundation—the federated courses. These courses, which the faculty chooses to include in the program on the basis of topical relevance to the organizing theme, represent each of the three disciplinary divisions of the university: humanities, social sciences, and physical sciences. This diversity allows students to use federated courses to satisfy both their general distribution and specific major requirements.

To clarify their understanding of the relationships among distinct disciplines, students must participate in discussions, make presentations, and keep weekly journals, all of which are assessed by the Master Learner.

FLC students electing the full program take a total of six federated courses, three each semester. According to McKenna, faculty teach these courses (open to all students) "almost as though the FLC program did not exist, maintaining the integrity of each discipline." He asserts that by allowing faculty to retain their autonomy, and by using faculty expertise within the broad context of the FLC themes, the program has achieved a stability based on the strength of traditional disciplines.

The theme for the 1985-86 semesters is Issues in International Understanding. Required federated courses include U.S. Foreign Relations, Politics and Society, the Religious Dimension, and Sociology of the Life Cycle. For this FLC, students must choose two additional federated courses to fulfill area and intercultural requirements. Among these are offerings such as Contemporary African Problems and German Culture and Civilization. FLC themes, says McKenna, represent contemporary issues that have an impact on and are of interest to both faculty and students. Past FLCs have dealt with World Hunger; America in Transition; and Technology, Values, and Society. The 1986-87 FLC will focus on Issues in Management and Business.

Linking the Disciplines

In addition to the federated courses, students must also take an integrative core course and a program seminar during each of the FLC program semesters. "In the one-credit core course, students encounter the entire FLC faculty," says McKenna. It is a more traditional interdisciplinary course in that the organizing responsibilities lie with the faculty members who make presentations to illustrate the FLC theme and emphasize the relationships between the different disciplines.

The program seminar, conversely, relies on student initiative and is, according to McKenna, the most "distinc-

tive" component of the FLC experience, made unique by the presence of the Master Learner. A professor chosen on the basis of teaching excellence in his or her own discipline, the Master Learner serves as a role model for FLC students, instructing them on how to analyze and integrate information and ideas. McKenna emphasizes that Master Learners are not experts in their assigned FLC themes; for example, a geology professor is the Master Learner for Issues in International Understanding. Like their student counterparts, the Master Learners must attend the federated courses, complete assignments, and take exams. They bring to the classroom, says McKenna, highly developed techniques for research and understanding plus insights cultivated through intimate knowledge of their own disciplines.

"The program seminar," says McKenna, "is a student-centered learning community in which students work with the Master Learner and each other to make connections between the topics covered in the federated courses." To clarify their understanding of the relationships among distinct disciplines, students must participate in discussions, make presentations, and keep weekly journals, all of which are assessed by the Master Learner. "In this way," says McKenna, "students learn in public, and help to teach each other. Unlike larger, impersonal classes," he adds, "there is no place to hide in the program seminar—everyone gets involved."

To give students increased attention, graduate students assist the Master Learner by meeting one-on-one with FLC participants. Selected for their strong teaching potential, these graduate students, all of whom are Mumford Fellows, attend FLC classes with students and devote a major portion of their time to the program for one year.

Those students who successfully complete the 26-credit, two-semester program earn a minor in the FLC theme studied. An optional third semester is available to students who want to study in even greater depth about a particular aspect of the theme. Working with one or more of the FLC faculty, these students take a three-credit course requiring an independent research project. McKenna observes that two students who participated in last year's FLC, America in Transition, are now enrolled in the independent research course, Origins of American Society; one is researching the concept of "manifest destiny," and the other is analyzing the conservative student movement.

Overall student reaction to FLC has been positive, says McKenna, noting that a common sentiment is an appreciation of personal contact between students and faculty. He cited the comment of a recent FLC student who said, "The most important gift that FLC has given me is the chance to be more than a number, and to try to develop as much of myself as I can." —*N.M.L.*

For more information, contact James B. McKenna; Director, Federated Learning Communities; State University of New York at Stony Brook; Stony Brook, NY 11794-3700 (516/246-8611).

Tufts University

Experimental College Enhances Curriculum

Collaborative learning lies at the core of Tufts University's Experimental College (Ex College). Its programs—Ex College itself, Freshman Explorations, Colloquia, Short-term Studies, and Quidnuncs—entail student involvement at every level of planning and implementation.

Founded in 1964 to serve as a testing ground for new programs and as a home for courses that did not fit easily into other structures, the Experimental College presently enrolls 1,500 students—primarily undergraduates—in credit-bearing courses and many more in noncredit colloquia. Student involvement has been, from the outset, paramount. Students initiate, teach, and evaluate courses, run conferences and colloquia, and head the Freshman Explorations program.

The Experimental College, explains Director Robyn Gittleman, is governed by a board consisting of her staff and an equal number of faculty and students. The board reviews all proposals and staffing for Ex College programs and functions as a cohesive group. "Never," says the director, "has there been a board vote that divided faculty and students." Courses are taught by Tufts students and faculty as well as by others from the metropolitan Boston area, including graduate students at Tufts and other institutions. "Students are involved," says Gittleman, "at every level in the process of selecting these courses." They interview every teaching applicant and make the final decisions about a course's inclusion.

Last spring's courses included such varied offerings as Jack Kerouac and the Beats, An Introduction to Watercolor, Korean Culture, and Group Decision Making. There is no limit to the number of courses a student may take in Ex College, providing that the student fulfills all other requirements. In fact, 78 percent of Tufts students have taken at least two units in Ex College. Because subjects seem unconventional, Gittleman comments, students initially may presume they are easy. They are soon disabused of this notion, however, she points out, because continual review by the Ex College board and by key faculty mitigates against the sloppy and the superficial.

The Freshman Explorations program is offered as an enriching alternative to the conventional freshman advising procedure. Its focus is a seminar, conducted by a team of upperclass students who have not only initiated the topic around which the seminar is built—but also de-

signed the course itself—and a faculty advisor. The dozen freshmen who participate in each seminar are responsible for doing reading assignments and completing a major project. The seminar meets three hours a week for a full year. Freshmen receive one unit of credit for taking the course, and their undergraduate instructors 1½ units for teaching it.

Students are able to explore subjects that do not fit within the bounds of a single, established discipline; faculty are able to test new courses.

Faculty begin advising students before the fall semester, during orientation, when they assist students with selecting courses and areas of concentration. But the emphasis in the Explorations seminar is on "immediate and sustained contact with peers." Seminar topics have ranged from an orientation to Boston entitled "Bean Town, a Frank Approach" to "the Computer Revolution" to "Humor in American Film." This year, approximately three-quarters of Tufts' 750 freshmen were enrolled in Explorations; others were turned away in this "first-come, first-served" program. Student evaluations are extremely enthusiastic, and this year the program received an ACT/NACADA (American College Testing Program/ National Academic Advising Association) award for excellence.

Other Ex College Programs

Students are also the source of ideas for Colloquia: *ad hoc*, noncredit offerings that can vary from a conference on Central America to a square dance class. They can, as the program's literature states, "be planned well in advance, or they can be scheduled on short notice whenever a particular idea or event demands discussion." Colloquia are open to any member of the Tufts community.

Students receive one course credit for auditing—regularly, and with the instructors' approval—three university courses during their undergraduate careers. Students also may receive partial, cumulative credits for courses in the Short-Term Studies Program, which offer one-quarter of a credit. When a student has completed two short-term courses—meeting for about 12 hours over a weekend or even a month—the student receives one-half credit.

Quidnuncs ("what next?") are student-initiated, credit-bearing study groups that explore, under faculty sponsorship, interdisciplinary topics of mutual interest.

Significant about the Ex College, Gittleman points out, is the fact that it institutionalizes collaborative learning at Tufts. Rather than being perceived as weakening the school's more traditional programs, Ex College enhances and supplements the Tufts curriculum. Students are able to explore subjects that do not fit within the bounds of a single, established discipline; faculty are able to test new courses. Former Ex College courses that are now part of the Tufts curriculum include Chinese, Hebrew, ethnomusicology, and photography.

Neither students nor faculty are paid for teaching in Ex College; students who teach can receive some academic credit. Instructors from the larger community may receive a nominal amount. The Experimental College functions as an academic department with its own budget.

For more than 20 years, Gittleman points out, "Many Tufts students have acted on the Ex College's belief that students are responsible for their own education." As students participate in Ex College programs—both as students and as teachers themselves—they "come to a better understanding of what makes for good teaching and of what is important in their own education and that of their peers." —*F.M.B.*

For more information, contact Robyn Gittleman; Director, Experimental College; Tufts University; Medford, MA 02155 (617/628-5000).

Washington and Lee University

Student Research in Anthropology

In a twofold drive aimed at stimulating scholarship in anthropology and paying tribute to former Washington and Lee University faculty member and Dean James G. Leyburn, Anthropology Professor John M. McDaniel coordinated a fund-raising campaign to endow the Leyburn Scholars in Anthropology Program.

In operation since 1981, the program supports undergraduate research in anthropology, according to McDaniel, by paying participants an hourly stipend for work completed under the program's direction. Money generated from the endowment also supports the publication of papers resulting from Leyburn Scholars' research. The first such book was published in 1984 and is titled *The James G. Leyburn Papers in Anthropology: Historical Archaeology West of The Blue Ridge: A Regional Example from Rockbridge County, Virginia*.

The concept of the Leyburn Scholars program arose in response to students who were interested in summer anthropology research but received limited financial support from the university's collaborative and independent research program, the R. E. Lee Scholars Program. "We were frustrated because we had many students who wanted to do the research," says McDaniel, "but the R. E.

Lee fund simply did not allow them to stay with us and work during the summer; they couldn't afford to."

Several differences exist between the selection processes of the R. E. Lee Program, under the direction of Dean John W. Elrod, and the Leyburn Scholars Program. For instance, while the Lee program requires students to maintain at least a 2.0 grade point average for Research Assistant status and a 3.0 GPA for the Research Scholar title, the Leyburn Scholars need only show an interest in participating. "There's never any need for that kind of weeding-out process," says McDaniel, adding, "because serious students are attracted" to the program. The Leyburn program also supports research conducted by former graduates of Washington and Lee who had been engaged in the program previously. According to McDaniel, two students who have since gone on to doctoral studies in anthropology were able to make use of the Leyburn fund after leaving the university.

A modest program in terms of the number of participants, the Leyburn program averages between 4 and 6 supported students during the academic year and summer months, while participants in the university-wide Lee program reached 75 students in 49 projects during the 1984-85 academic year.

Research in the Field and on Paper

Most students become interested in the Leyburn program in their sophomore year, says McDaniel, after having taken an introductory anthropology course and a six-week spring term archaeology field course. Usually the most dedicated students ask to participate in the summer program in which they spend up to eight hours a day every day of the week involved in the research effort, depending upon the amount of work necessary. Since students conducting research during the academic year do so in addition to their course load, the amount of time students devote to their research ranges from two to ten hours a week.

Collaboration between McDaniel (and other interested Washington and Lee faculty members) and the Leyburn Scholars on the research project usually begins when students seek McDaniel's help in defining a realistic research question. McDaniel notes that a large portion of the collaborative effort occurs between the student and faculty members involved. "I've had very few papers delivered or articles published during my career at Washington and Lee that did not include a student who deserved to be included," says McDaniel. Although student-to-student collaboration is encouraged, the extent to which this occurs is minimal and normally relegated to the sharing of information among students engaged in a project.

Responding to the question of whether the Leyburn program primarily offers students a field research opportunity, McDaniel states that "during our early years, there was more of a field orientation, while in recent years, there's been more of an orientation toward philosophical questions" in relation to "the place of historical archaeology and the sites we should be excavating."

Of the students who have passed through the Leyburn Scholars program since its inception, McDaniel finds it particularly satisfying to see them leave the university with a sense of self-confidence and self-esteem as a result of participation in the anthropology research experience. "I guess the most gratifying thing to me is the kind of commitment a student will make to the program. Students will work through the weekends to get something ready for meetings, not because they have to, but because they want to, because they take pride" in their contribution and what it means. —*L.M.N.*

For more information, contact John M. McDaniel; Professor of Anthropology; or John W. Elrod; Dean of the College; Washington and Lee University; Lexington, VA 24450 (703/463-8746).

RESOURCES

I. GENERAL

Although numerous books and articles focus upon specific collaborative models, there are very few general resources on the topic. One very useful sourcebook is:

1. Bouton, Clark, and Russell Y. Garth. *Learning in Groups*. San Francisco: Jossey-Bass, 1983.

   The authors discuss a wide range of group learning activities including simulations, problem-solving exercises, team projects, and peer evaluations. Applications to graduate and professional as well as undergraduate education are included. Two summary chapters discuss group-based learning from the standpoints of students and teachers, respectively. This source also contains a useful bibliography.

While it is not directed exclusively toward collaboration in education, the following source is also helpful:

2. Gamson, Zelda F., and associates. *Liberating Education*. San Francisco: Jossey-Bass, 1984.

   This book describes and analyzes 14 programs, each of which contributes to student development or "liberation" through "cultivating critical awareness, sharpening skills of inquiry and analysis, and increasing self-assurance and independence." Of particular interest is the chapter by Gamson and Patrick Hill on "Creating a Lively Academic Community."

II. Federated Learning Communities

One collaborative model that has been widely applied is the Federated Learning Community (FLC), which originated at the State University of New York at Stony Brook. FLC programs differ in detail, but they generally integrate or "federate" a cluster of courses around a common theme; students take the cluster of courses as a group, and there is often an accompanying seminar that weaves together threads from the various courses. In many of these projects one or more professionals (faculty, graduate students, or both) participate in a student role; they are sometimes called "Master Learners." Sources that discuss the FLC model in detail include:

3. Hill, Patrick. "Communities of Learners: Curriculum as the Infrastructure of Academic Communities." In Hall, James W., and Barbara L. Kevles, eds. *In Opposition to Core Curriculum: Alternative Models of Undergraduate Education*. Westport, CT: Greenwood Press, 1982.

4. Hill, Patrick. "Inter-Generational Communities: Partnerships in Discovery." In Jones, Richard M., and Barbara L. Smith, eds. *Against the Current: Reform and Experimentation in Higher Education*. Cambridge, MA: Schenkman Publishing Co., 1984.

The above items detail the FLC model, with particular reference to the SUNY at Stony Brook experiment, and discuss the conclusions emerging from the experiment.

5. Miller, Marjorie. "On Making Connections." *Liberal Education* 69(2), (1983).

A discussion of the implications of the FLC experience by a philosopher who participated as a Master Learner in the Stony Brook project. Miller found that working with the FLC group influenced her teaching even in more traditional courses.

6. Ochs, Peter. "On the Search for Academic Community." *Perspectives* (Summer 1985).

Ochs critiques the Federated Learning Community model, and Patrick Hill replies.

III. Peer Collaboration

Models of peer collaboration other than the FLC design have been implemented. For discussions of the benefits of collaboration among peers, see:

7. Collier, K. G. "Peer-Group Learning in Higher Education: The Development of Higher-Order Skills." *Studies in Higher Education*, 5(1), 1980, 55-62.

8. Watson, E. R. "Small Group Instruction." In A. B. Knox, ed. *Teaching Adults Effectively*. San Francisco: Jossey-Bass, 1980.

Peer collaboration has been particularly effective in projects aimed at improving students' writing skills. In such projects, specially trained students serve as peer tutors, reading written assignments and suggesting editorial or stylistic improvements. For discussions of models of this type, consult:

9. Bruffee, Kenneth. *A Short Course in Writing*, 3rd ed. Boston: Little, Brown and Company, 1985.

10. Elbow, Peter. *Writing Without Teachers*. New York: Oxford University Press, 1973.

IV. Teaching Collaboratively

Collaborative thinking can be applied to teaching. In collaborative teaching, the roles of teacher and learner are less sharply defined than in traditional teaching; the teacher's position becomes not that of the deliverer of knowledge, but rather that of an experienced guide as he or she embarks with learners on a mutual quest to discover—even to create—knowledge. This idea is developed further in:

11. Katz, Joseph, ed. *Teaching as Though Students Mattered*. San Francisco: Jossey-Bass, 1985.

12. Glassman, E. "The Teacher as Leader." In K. Eble, ed. *Improving Teaching Styles*. San Francisco: Jossey-Bass, 1980.

The following sources, while not focusing on collaboration *per se*, are related to the collaborative model and will be helpful to those interested in developing collaborative methods of teaching:

13. Cones, J. H., J. F. Noonan, and D. Janha, eds. *Teaching Minority Students*. San Francisco: Jossey-Bass, 1983.

14. White, Alvin, ed. *Interdisciplinary Teaching*. San Francisco: Jossey-Bass, 1981.

V. Collaboration and Student Development

Collaborative learning experiences may have profound effects upon students' cognitive, social, and ethical development. The following sources discuss student development; their perspectives differ, but each can easily be related to collaborative teaching and learning styles:

15. Bandura, Albert. "Self-Efficacy Theory: Toward a Unifying Theory of Behavioral Change." *Psychological Review* 84(2), 1977, 191-215.

16. Heath, Douglas. *Growing Up in College*. San Francisco: Jossey-Bass, 1968.

17. Katz, Joseph, and associates. *No Time For Youth*. San Francisco: Jossey-Bass, 1968.

18. Cross, K. P. *Accent on Learning*. San Francisco: Jossey-Bass, 1976.

19. Katz, Joseph. "Rethinking Teaching from the Humanist's Perspective." *Liberal Education* 71(3), 1985, 241-250.

Contemporary understanding of the process of cognitive development has been greatly enhanced by the pioneering work of William Perry and his colleagues. For Perry's model, see:

20. Perry, William G. *Forms of Intellectual and Ethical Development in the College Years*. New York: Holt, Rinehart and Winston, 1970.

21. Perry, William G. "Cognitive and Ethical Growth: The Making of Meaning." In A. Chickering, ed. *The Modern American College*. San Francisco: Jossey-Bass, 1981.

VI. Collaborative Theories of Knowledge

Collaborative styles of thinking are especially consistent with a view of human knowledge that stresses the importance of social communities and suggests that learning is not merely the transfer of information but rather part of an ongoing conversation within such a community. This approach to knowledge has been explicitly related to the context of collaboration in a series of essays by Kenneth Bruffee:

22. Bruffee, Kenneth. "Liberal Education, Scholarly Community, and the Authority of Knowledge." *Liberal Education*, 71(3), 1985, 231-239.

23. Bruffee, Kenneth. "Collaborative Learning and the 'Conversation of Mankind.'" *College English*, 46(7), 1984, 83-100.

24. Bruffee, Kenneth. "Learning to Live in a World Out of Joint: Thomas Kuhn's Message to Humanists Revisited." *Liberal Education*, 70(1), 1984, 77-81.

25. Bruffee, Kenneth. "Liberal Education and the Social Justification of Belief." *Liberal Education*, 68(2), 1982, 95-114.

26. Bruffee, Kenneth. "The Structure of Knowledge and the Future of Liberal Education." *Liberal Education*, 67(3), 1981, 181-185.

The approach to knowledge advanced by Bruffee is an extension of theories that have emerged within a variety of academic disciplines: through the work of Richard Rorty in philosophy, Clifford Geertz in anthropology, Stanley Fish in literary criticism, and Thomas S. Kuhn in the history and philosophy of science. Examples of their work are:

27. Rorty, Richard. *Philosophy and the Mirror of Nature*. Princeton: Princeton University Press, 1979.

28. Geertz, Clifford. *Local Knowledge*. New York: Basic Books, 1983.

29. Fish, Stanley. *Is There a Text in This Class?* Cambridge, MA: Harvard University Press, 1980.

30. Kuhn, Thomas S. *The Structure of Scientific Revolutions*. 2d ed. Chicago: University of Chicago Press, 1970.

VII. Miscellaneous References

The following sources are related to the concept of collaborative education but do not fall into any of the preceding categories:

31. Hill, Patrick. "The Ethics of Helping: A Comparison of the Role of Self-Reliance in International Affairs and Pedagogy." *Metaphilosophy*, 12(2), 1981, 181-205.

32. Study Group on the Conditions of Excellence in American Higher Education. *Involvement in Learning: Realizing the Potential of American Higher Education*. Washington, DC: National Institute of Education/U.S. Department of Education, 1984.

This landmark study of American postsecondary education concludes that students must become actively involved in the learning process and must assume responsibility for their own education, a position that reinforces the collaborative philosophy of teaching and learning.

References particularly relevant to Karen Romer's essay include:

33. Wolff, Robert Paul. *The Ideal of the University*. Boston: Beacon Press, 1969.

34. Perkins, D. N. *The Mind's Best Work*. Cambridge, MA: Harvard University Press, 1981.

35. Gordon, William J. J. *Synectics: The Development of Creative Capacity*. New York: Harper & Row, 1961.

36. de Bono, Edward. *Lateral Thinking: Creativity Step by Step*. New York: Harper & Row, 1970.

37. Romer, Karen T., et al. *CUE: Models of Collaboration in Undergraduate Education*. Providence, RI: Brown University, 1985.

This book lists several types of collaborative projects at various colleges and universities. Its publication is a result of the September, 1984, Conference on Collaboration in Undergraduate Education held at Brown University and sponsored by the Fund for the Improvement of Post Secondary Education, the Association of American Colleges, Brown University, and the State University of New York at Oswego.

This bibliography was created collaboratively by members of CUE (Collaboration in Undergraduate Education), a national network of persons involved in collaborative learning projects. The list was assembled by William R. Whipple; Director, University Scholars Program; University of Arkansas at Little Rock; Little Rock, AR 72204.